University of Alberta

Form and Virtuosity in Luciano Berio's *Sequenza I*

by

Ian Knopke

A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfillment of the requirements for the degree of Master of Arts

Department of Music

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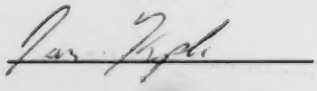

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled Form and Virtuosity in Luciano Berio's *Sequenza I* submitted by Ian Knopke in partial fulfillment of the requirements for the degree of Master of Arts.

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SEPT. 29, 1997

Abstract

The objective of this thesis is an analysis of Luciano Berio's *Sequenza I*, for solo flute, using the composer's own published comments on the compositional system used in creating the piece. Additional insights into this system are provided by materials relating to an earlier composition, *Nones*, for orchestra. The system used in composing *Sequenza I* is re-constructed and explained in detail. There is also a consideration of the composer's own position in relation to the serialist movement, which is compared with the similar position of one of Berio's contemporaries, György Ligeti. The analysis uncovers an uncomplicated compositional plan, which in turn provides a framework for the generation of a complex surface layer of musical material.

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This thesis is indebted to a number of individuals. First and foremost to my main advisor, Adam Krims, for providing an endless resource of patience and clarity of insight without which this thesis would likely never have reached completion. Also, to Howard Bashaw, for the encouragement to pursue this topic in the first place, and to James Defelice, for generously donating his time to this project. I was very lucky to have had such an understanding committee, composed of persons for whom I hold so much respect and admiration.

In a more general sense, I must warmly acknowledge the lasting support, in every way possible, from my parents, Harold and Shirley, and my sister, Linda. I know you know all of this, but this is just a little reminder, in case I haven't mentioned it lately. I am also grateful to my grandfather, Gerhard Knopke, who has conquered far greater challenges than I have had to face and continues to serve as a source of inspiration. I would like to mention all of the other family members who have given me support, but I have a very large family, so a very large and respectful thanks will have to suffice for all.

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Introduction

In this thesis I seek to explore one of Luciano Berio's many complex compositions, *Sequenza I* for solo flute. Berio's music has been of interest to me for several years because of, among other things, the many complex and diverse topics it embraces and eventually integrates. This particular piece, however, has especially appealed to my sense of curiosity. It seems to be the first composition, from a vantage point almost forty years later, in which Berio begins to show signs of the style, or more accurately styles which he was later to develop. From a historical viewpoint, *Sequenza I* has always appeared to occupy a very special place in his compositional development.

It is also of interest for its place in musical history, in that it appears just as the serialist movement, an ideological force of great importance to the experimental music of the 1950's, is drawing to a close. Berio was in some ways a part of that movement, yet in the late 1950's he, like György Ligeti, began to distance himself from the movement's core principles. *Sequenza I* occupies something of a transitional position, occurring in the gap between a disintegrating group movement and a flourishing personal

development.

In addition to the score of *Sequenza I*, a small amount of outside information is available for research. Over the course of my investigations I examined many different interesting and diverse sources, but a specific group came to be of particular importance. The first was David Osmond-Smith's *Two Interviews*, perhaps the most important source of information for any Berio scholar. During the course of one of the interviews, Berio explains some aspects of the compositional approach he used in *Sequenza I*. This would come to be my main source of external information; much of my analysis has come to be an evaluation of *Sequenza I* using this account. The other group of sources were centered on the 1954 composition *Nones*. An examination of the literature surrounding this earlier composition led to a number of analytical insights, especially important considering much of the information comes from the composer himself.

The first section of this thesis gives a biographical overview of Berio's life and compositional career through the 1950's, also defining the historical situation of the serialist movement in the process, with a focus on its relationship to Berio. The second chapter describes the compositional pre-planning of *Sequenza I*, using Berio's account as a starting point. The third and final section is an analysis of *Sequenza I* through the use of the concepts laid out in the second section.

I

Biographical Overview

> I believe that what happens in music is more or less what happens in real life. When you live during the day you make a step. You don't decide `well, I make a step, now I want to follow through with that type of action,' but you make a step in a certain direction because you are already moving in a frame of thought...[1] -Luciano Berio

Luciano Berio was born in the Italian town of Oneglia on October 24, 1925. The Berio family had been involved in musical activities along the Ligurian coastline for generations. Adolfo Berio, grandfather of Luciano, was both an organist and a composer of what Berio would later refer to as "first-rate Kitsch".[2] His father, Ernesto Berio, was also a composer and had attended the Milan conservatory where Berio himself was later to study. Berio's home life was filled with regular chamber music concerts, and Berio began to participate in these as soon as he was old enough,

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[1]Sam Zeichner, "Sound in Luciano Berio's *Sinfonia*: a La Rue Style Analysis," *Dissonance* 5, no. 2 (1973): 2

[2]David Osmond-Smith, ed. and trans., *Luciano Berio: Two Interviews with Rossana Dalmonte and Bálint András Vargas* (London: Marion Boyars, 1981/85), 44.

on both violin and piano. Through this residential training he soon became familiar with "the whole range of chamber music, with and without the piano: Mozart, Beethoven, Schubert, Schumann, Mendelssohn, Brahms and even Dvořák."[3] This was perhaps his first and most important step towards becoming a professional musician, providing him with a solid grasp of both harmony and the classical tradition. In any case, given his family background, it should not have been any surprise that the junior Berio would soon aspire towards the life of a professional musician.

This would have to wait, however. At the age of nineteen he was drafted into the Italian army, whereupon he became the victim of an unfortunate accident. On his first day, and without any instruction, he was given a loaded weapon. The gun turned out to be defective and exploded in his hand. He spent three months in a military hospital which was without the proper medicines to treat his hand wounds. (This was during the final year of the Second World War). A bone infection developed, nearly necessitating amputation of his thumb. He faked a medical certificate and was discharged from the military hospital, at which time he fled first to Milan and then to Como to join his partisan friends.

There is little doubt that the war had many consequences for the teenaged Berio, as it must have on any European at the time, but two specifically musical

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[3]Ibid., 46.

repercussions are worth noting. First, his hand injury did not heal properly and effectively ended his career as a concert pianist, although he would still continue to perform privately and in accompaniment roles as a student for financial reasons. More importantly, Italy's political position during the Second World War had interrupted his musical education and prevented him from becoming acquainted with the most recent trends in musical composition, the works of Stravinsky, Hindemith, Bartók, and the Second Viennese School:

> Of that crucial period let me simply say that among the many thoughts and emotions aroused in me by those encounters, one is still intact and alive within me today: Anger - anger at the realization that Fascism had until that moment deprived me of knowledge of the most essential musical achievements of my own culture; further, that it was capable of actually falsifying spiritual reality.[4]

Similar interruptions and experiences have been remarked upon by many European avant-garde composers, such as György Ligeti, Witold Lutoslawski, Krystof Pendereski and Karlheinz Stockhausen among others. While it is outside the limits of this project, the disruptive influence of the Second World War and its resulting politics as a whole on contemporary European composition is a topic which requires further

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[4]Luciano Berio, "Meditation on a Twelve-Tone Horse," *Christian Science Monitor*, 15 July 1968, 8.

exploration.[5]

After the end of the war Berio enrolled at the Milan Conservatory in the Autumn of 1945. Apart from his move to the larger "metropolis" of Milan, many of his most important experiences at the conservatory were in the counterpoint class of Giulio Cesare Paribeni. This encounter must have made a very deep impression on Berio. Even thirty years later, he still placed great importance on the study of counterpoint as part of an initial basis for learning to compose, to be followed by classes in musical analysis.[6] In 1948 he began composition studies with Giorgio Ghedini, who had been an instructor in composition at the conservatory since 1941. Ghedini had a special passion for orchestration and contributed extensively to Berio's education in this previously neglected area. Berio believes that these two, Paribeni and Ghedini, were among the musicians who "personally gave [him] a great deal"[7] and helped him to overcome the educational deficiencies that had resulted from the war.

After completing his courses at the Conservatory, Berio studied for a short time with Luigi Dallapiccola, who was

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[5]A well-researched overview of the early serialist movement from a musical perspective can be found in Paul Griffiths, *Modern Music and Beyond* (Oxford: Oxford University Press, 1995), 3-147.

[6]Osmond-Smith, *Two Interviews*, 75.

[7]Ibid., 49.

generally regarded at the time as one of the most important living Italian composers and possibly the most contemporary. Curiously, this meeting of two Italians took place in the United States, over six weeks at the 1952 Berkshire Music Festival in Tanglewood, Massachusetts, which Berio had the privilege to attend under a Koussevitzky scholarship. Although Ghedini was responsible for introducing Berio to the twelve-tone technique first implemented by Arnold Schoenberg, it was Dallapiccola who was primarily responsible for the bulk of Berio's dodecaphonic education. This appears to have been a sometimes frustrating experience. Dallapiccola may have been one of the leading avant-garde composers of the time, and certainly the most influential of the Italians, but his habit of expressing musical concepts as abstractions in the form of literary analogies served to lessen his effectiveness as an instructor.[8] Berio appears to have acquired his personal knowledge of Dallapiccola's twelve-tone techniques largely through the study of his instructor's scores, and less so from the teacher himself. Nevertheless, Berio's experiences with Dallapiccola left some strong impressions in the form of four new works: *Due Pezzi* (1951) for violin and piano, *Cinque Variazioni* (1952-1953) for piano ("based upon the

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[8]It is interesting that Steve Reich has expressed an equally critical appraisal of Berio's own teaching abilities during the time he studied with Berio at Mill's College. See John Schneider, "Electric Counterpoint: A Conversation with Steve Reich," *Guitar Review*, winter 1990, 3.

three-note melodic cell - "fratello" - from Dallapiccola's "Il Prigioniero"), *Chamber Music* (1953-54) for female voice, cello, clarinet and harp, and *Variazioni* (1953-54) for chamber orchestra. Chamber Music is especially notable in that it is the first composition of Berio's to demonstrate the influence of James Joyce, whose writings had so often been the source of Dallapiccola's pedagogical literary analogies. Joyce's writings were to later become crucial to Berio; the 1958 tape composition *Thema (Omaggio a Joyce)* was created by superimposing a passage from the Sirens chapter of *Ulysses* in English, French, and Italian (read by Cathy Berberian). In a more general sense, the Joycean idea of networks of associations, suggestive double meanings, and quotations has been an influence on almost all of Berio's post-Darmstadt work, and continues to be so today. The most famous example of this is arguably *Sinfonia* (1968-69), for large orchestra and eight amplified vocalists.

A second benefit of Berio's voyage to America[9] was his chance attendance of the first public electronic music concert in the United States (28 October 1952, Museum of Modern Art, New York). Alongside performances of a great deal of Edgard Varèse's instrumental music, no doubt rarely heard in Milan, were heard tape pieces by Otto Luening and Vladimir Ussachewsky. At the time both composers were on the

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[9]This was not his first trip to the United States. See Osmond-Smith, *Two Interviews*, 54.

faculty of Columbia University. The most extensive piece, Ussachewsky's *Sonic Contours*, was in Berio's opinion not yet fully musical. Nevertheless, the concert adequately demonstrated the potential of these new resources and was impressive enough to pique Berio's interest. Soon after returning to Milan, and on the recommendation of Dallapiccola, he began to work with the recording equipment at the RAI, Italy's national radio and television company. Eventually, in 1953 he was commissioned to produce a series of soundtracks for television. During this time he also composed his first electronic piece, *Mimusique No. I*, based on tape manipulation and distortion of a single recorded gunshot.

Berio was greatly encouraged by his fledgling efforts in this new direction and soon began writing proposals aimed towards establishing a permanent studio for electronic music research at the RAI. After much persuasion, he had the studio was approved and opened in 1955 under the RAI-imposed title Studio di fonologia musicale, with Berio as director. The misplaced term "fonologia" [phonology] in the title is perhaps representative of the lack of understanding (and consequent minimal funding) provided by the RAI.[10]

Another equally influential experience of this time was Berio's first encounter with his soon-to-become lifelong friend Bruno Maderna. Upon hearing Hermann Scherchen conduct

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[10]Ibid, 64.

in Genoa in 1953, Berio took the opportunity to introduce himself. Impressed by Berio's interest in new musical directions, Scherchen suggested Berio arrange a meeting with Maderna, a student of Scherchen's from his 1948 course at the conservatory in Venice. (Luigi Nono also attended this class). The two Italians formed an immediate connection during their first meeting in Milan and soon established a close friendship(and working relationship) which proved to be mutually beneficial. Maderna was already becoming an important figure in the European Avant-Garde and would soon become one of its most influential pioneers. He also shared Berio's optimism for the exploration of new electronic resources; in 1952 Maderna himself had created the first work to combine live instruments and tape recording, *Musica su due dimensioni* for flute, cymbal and magnetic tape. Later he was to become Berio's main collaborator (and advisor) in the Studio di fonologia musicale. Maderna also introduced Berio to the Darmstadt summer courses, as well as to the embryonic European serialist approach in general.

At this point a slight digression seems necessary on the much-discussed topic of "Darmstadt." There is something of a tendency to use Darmstadt as an interchangeable replacement for the entirety of European serialist thought. This trait seems somewhat misleading to me, as if this single geographical location were somehow single-handedly responsible for all the developments in integral serialism

of the 1950s. However, it would be folly to deny that in the fifties Darmstadt was the primary meeting place of this music's main exponents. Neither is this the place to evaluate the Darmstadt "Ferienkurse" and any consequences or shortcomings it may or may not have had. What will be useful, and what follows here, is a short summary of the musical climate of post-war Europe for the uninitiated.

In the wake of the Second World War there was a considerable effort to rebuild and "push forward" in Germany. This regrowth took the form of, among other things, support and funding for cultural and artistic endeavors from both government and municipal agencies, as well as most radio stations. (The *Musik in Geschichte un Gegenwart* (MGG) music encyclopedia was another development of this outgrowth). Among the many effects of this sponsorship was the establishment of the Darmstadt summer courses in 1946 by music critic Wolfgang Steinecke.[11] By 1951 this had become a central meeting place for many of Europe's older generation of composers (many of whom, such as Igor Stravinsky, Ernst Krenek, Paul Hindemith, Bela Bartok and Arnold Schoenberg had fled to America and escaped the war) and their younger counterparts (such as Karlheinz Stockhausen, Pierre Boulez, Mauricio Kagel, Luigi Nono, Henri Pousseur, and soon Berio himself). Many of the real masterpieces of integral serialism and its developments were premiered as part of the

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[11]Griffiths, *Modern Music and Beyond*, 35.

summer courses, such as Stockhausen's *Kreuzspiel* and the first book of Boulez' *Structures*. Concurrent, and almost as important was the Donaueschingen Festival, a series of concerts held each October at which first performances were held of works such as *Polyphonie X* (Pierre Boulez), *Spiel* (Karlheinz Stockhausen), as well as non-serial compositions such as *Metastasis* (Iannis Xenakis) and *Atmospheres* (György Ligeti). Both of these places/events had an enormous influence on the European New Music environment in the fifties, if for no other reason, than for dissemination of new theories, compositional techniques, and analytical papers.

Maderna himself had been a participant in the Darmstadt summer courses since 1949. Berio's participation began either in 1953 or 1954.[12] He was later to reflect that "aside from the swarms of adventurers, the merchants of sonic carpets, junk graphic extravaganzas, political gestures and musical cure-alls that made the Darmstadt *Ferienkurse* sometimes seem like a Bauhaus transplanted into a flea market, those years were, to say the least, fundamental."[13] As always with Berio, the experiences of his environment did not take long to generate a composition. In this case it seems it was Darmstadt that became the impetus for *Nones*, a

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[12]Janet Hander-Powers, "Strategies of Meaning: A Study of the Aesthetic and Musical Language of Luciano Berio" (Ph.D diss., University of Southern California, 1995), 39.

[13]Osmond-Smith, *Two Interviews*, 61.

work for orchestra completed in 1954 (and premiered in 1955 under the direction of Maderna). This was Berio's first important work and was to prove indicative of the directions he would later pursue in greater depth. In the succeeding years he was to compose a string of powerful new compositions; among these were the *Quartetto* (1956) for string quartet, *Allelujah II* (1957-1958) for five instrumental groups, the *Serenata* (1957) for flute and fourteen instruments, and *Sequenza I* (1958) for solo flute.[14]

By the late 1950's, the serialist movement was beginning to disintegrate. The initial drive that had forced such a powerful development of musical thought and materials was quickly losing momentum. One of the earliest criticisms of serialism had come from the Greek composer Iannis Xenakis in his 1955 article "La crise de la musique sérielle."[15]

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[14]In order to avoid confusion, I would like to make the reader aware that *Sequenza* is the first of a series of instrumental pieces, each with a succeeding numerator, i.e. *Sequenza II*, etc. The first was not numbered at its time of publication, nor did this situation change for some thirty years afterward. In light of the rest of the series many authors refer to this first score, perhaps incorrectly, as *Sequenza I*. This is in fact often the practice of Berio himself, as evidenced in the above quotation, although he has not done so consistently in all sources. The 1992 re-release of the score reflects this alternative and is officially titled *Sequenza I*. In this document I have adhered to the recent wishes of the composer and have referred to both the older and newer scores as *Sequenza I*.

[15]Yannis Xenakis, "La Crise de la Musique Sérielle" [The Crisis of Serial Music], *Gravesaner Blatter* 1 (1955): 2-4; trans. and quoted in Paul Griffiths, *Modern Music and Beyond*, 91. A similar tone can be found in Iannis Xenakis,

Xenakis, however, was not considered one of the Darmstadt insiders (even though he had also been a student of Olivier Messiaen), and a public that had enthusiastically embraced these new compositional methods had no difficulty ignoring his critique. Nevertheless his main criticism, that the overlapping of row structures in all registers produced "nothing but a mass of notes," would within a few years be echoed by others.[16]

The first criticisms of serialism to be taken seriously came in 1958 from György Ligeti in his innocently titled article "Metamorphosis on Musical Form."[17] While he had not actually composed any serial music, no one doubted that Ligeti had a solid understanding of serialism; his extensive analysis of Pierre Boulez' *Structures Ia* had been instrumental in the dissemination of serialist composition techniques among other composers. Ligeti was critical of many of the basic assumptions of serialist thought. By 1960

"The Origins of Stochastic Music," *Tempo* 78 (1966): 9-12.

[16]Part of the rejection of Xenakis' criticism may have been a result of his proposed solution. Xenakis' answer to the "mass of notes" problem was to replace the technique of overlapping several row structures (which even most highly trained musicians could not distinguish by ear) with a global control mechanism derived from stochastic mathematics. For a professional architect, the advanced calculations required would seem commonplace, but would have posed much greater difficulties for the average composer, with a more standard musical background. At the time this solution must have seemed too radical for even the "avant-garde."

[17]György Ligeti, "Metamorphoses of Musical Form," *Die Reihe* 7 (1960/65): 5-19.

he was proving in sound what he had discussed in words with the orchestral work *Apparitions*, forging a style based largely on orchestral clusters without the use of serial techniques, at that time conspicuous in their absence. This signaled a new direction, a sign that serialism was not necessarily the only path, or even a particularly valid one.

Ligeti's criticisms of the serialist movement were the beginning of a wave of similar responses by others, although few were as clear and concise in their objections as he had been. These criticisms are somewhat after the fact. Already by this point the early brotherhood of serialist composers (Boulez, Stockhausen, Nono, etc.), once united in the pursuit of a common goal, had begun to dissociate themselves and their work from one another for the simple reason of a lack of common interests. Each would soon branch off in his own direction, some joining newer trends such as indeterminacy, others to pursue a more private sound world, but each marked by experiences from the previous decade. Although serialist thought and technique would still remain an influence on current musical thought, which continues to this day, serialism as a united, unidirectional movement had definitely come to an end.

By 1958 Berio was also beginning to voice his own growing dissatisfaction with serialist dogma, both verbally and musically. In this year he composed two important new works that signaled a change in the direction of his

researches. The first was a tape work, *Thema (Omaggio a Joyce)* composed by superimposing the voice of his wife, the singer Cathy Berberian, reading an excerpt from James Joyce's *Ulysses* in several different languages. An extremely dense and complex sound mass is formed through the simultaneous playback of multiple, overlapping, timbrally-identical voices. The electronic medium is used here in an experimental attempt to turn language directly into sound, a process through which Berio "extracted the music from [Joyce's text]"[18], and did so in a direction that was uniquely his own. The second composition was *Sequenza I* for solo flute. Unlike the largely serialist *Nones, Quartetto, or Allelujah II*, these are the first works in Berio's ouevre that are truly different from what other composers were doing at the time.

In these we can hear the beginnings of the Berio of *Sinfonia, Coro,* and dozens of other distinctive and influential works, including thirteen *Sequenze*. Berio would go on to explore and embrace a wide range of interests including linguistics, folk music and musical theater, working towards the future with digital computer systems and reappraising the past through historical research and

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[18]Barry Schrader, "Interview with Luciano Berio," in *Introduction to Electro-Acoustic Music* (Englewood Cliffs, New Jersey: Prentice-Hall, 1982), 179-183.

quotation, as well as cultivating a successful career as one of the leading composers of this century.

II

Compositional Methodology

> I contented myself with very little when you think about it, granted that at the time you couldn't really change the image of the flute without at least playing it underwater.[19]
>
> -Luciano Berio

Among the many fortuitous acquaintances Berio would make at Darmstadt was that of the flautist Severino Gazelloni, one of the most important instrumentalists on the European new-music circuit. Gazzelloni was a regular performer of the difficult flute part in Boulez' *Le Marteau Sans Maître* (1953-5) and was responsible for raising the general prominence of that instrument within contemporary music. Within a relatively short time period Berio wrote three works for Gazelloni. *Serenata I*(1957) for flute and fourteen instruments was first premiered and conducted as part of Boulez' Domaine Musicale concert series. Also a miniature concerto, *Tempi Concertati*(1958-1959) both surrounded and opposed the flautist with four groups of instrumentalists, and it relies upon the performer's physical motion for cuing and coordinating the "orchestra."

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[19]Osmond-Smith, *Two Interviews*, 98.

Sandwiched chronologically between these two pieces is *Sequenza I(1958)* for solo flute, the subject of this thesis.

With the opportunity to compose for such a skilled performer, reducing the more common barriers of technical difficulty and ensemble coordination, Berio felt free to attempt a realization of some of his more challenging ideas. In the case of *Sequenza I* he "wanted to establish a way of listening so strongly conditioned as to constantly suggest a latent, implicit counterpoint." [20] This ideal was largely based on the polyphonic melodies of Bach. However, he soon came to realize the impossibility of achieving this goal, partially because Bach's polyphony was made possible by the more or less universal tonal language of the time, whereas in the current European medium of new music "history provided no protection." [21] Berio once remarked that "like a good Ligurian, I never throw anything away";[22] in the case of *Sequenza I*, he simply changed the direction of the project, moving from the pursuit of implicit polyphony toward a rediscovery of melody's heterophonic possibilities. It is from this definition that *Sequenza* derives its name, as a "sequence" of harmonic fields.[23] The New Harvard Dictionary

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[20]Ibid, 97.

[21]Ibid.

[22]Ibid, 90.

[23]For discussions of the harmonic fields involved, see David Osmond-Smith, *Berio* (Oxford: Oxford University Press, 1991), 30-33; Pierre-Yves Artaud, "Aspects of the Flute in

of Music defines heterophony as "The simultaneous statement, especially in improvised performance, of two or more different versions of what is essentially the same melody (as distinct from polyphony)." [24] Considering that nowhere in *Sequenza I* is the performer asked to play two melodies *simultaneously*, especially two closely-related melodies, it seems that Berio's definition of heterophony is rather generous, and it seems to refer more to some kind of developing variation form in which different versions of the same melody are presented one after another instead of simultaneous heterophony.

2.1 Notation

Sequenza I is notated in a kind of proportional or "space-time" notation similar to that used by John Cage in his 1952 composition, *Music of Changes*.[25] It seems likely that Berio would first have encountered this innovative graphic style of notation during his visit to the United States and the Tanglewood music seminars in 1952. Instead of the more usual system of barlines and measures, this system

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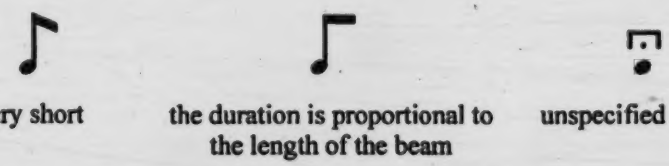
the Twentieth Century," *Contemporary Music Review* 8 (1994): 151-152.

[24]Don Michael Randel, ed, *The New Harvard Dictionary of Music* (Cambridge, Mass.: Belknap Press of Harvard University Press, 1986), 377.

[25]Cage used a value of two and a half centimeters per quarter note. One inch is equivalent to 2.54 centimeters. See James Pritchett, *The Music of John Cage* (Cambridge: Cambridge University Press, 1993), 80-81.

places a gridwork of small vertical lines or ticks on the upper line of the staff throughout the entire score. These are almost always an inch apart, and this regularity of distance is crucial to the performer. The distance from one tick to the next is given a metronome marking of 70 beats per minute. This means that, if performed correctly, it should take a performer a little under one second to play the material between any two ticks, except for in the last half of the final page, which is marked "60". The time between notes is determined not by the usual system of flags and beams, but by the physical distance or amount of staff space between events on the page. A single flag (since there are no double or triple flags in the piece) indicates that the note is always played short or not sustained. A beam indicates that the note is held the (visual) length of the beam. Notes which are beamed together are to be performed as an unbroken group. A note marked with a *fermata* is to be held for an unspecified length of time.[26] (Figure 1 illustrates.)

Figure 1 - Rhythmic notation in *Sequenza I*



[26]Luciano Berio, *Sequenza* per flauto solo (Milano: Edizioni Suvini Zerboni, 1958), performance directions.

The original score does not contain any measure numbers, and it has been necessary on my part to add these into the working score for referential purposes. They are used throughout this thesis to refer to musical events. Strictly speaking, these are not really measures (i.e., they are not meant to convey a meter or pulse), nor are the ticks equivalent to the bar lines one would find in regular musical notation. Both simply function as a means by which the performer can orient him/herself, and they have no direct influence on the sound of the piece. However, in this thesis I will refer to these as measures for the sake of convention and ease of discussion.

Years after the piece's composition, Berio was to make clear that he was not entirely pleased with all aspects of *Sequenza I*'s notational style:

> The piece is very difficult, and I therefore adopted a notation that was very precise, but allowed a margin of flexibility in order that the player might have the freedom - psychological rather than musical - to adapt the piece here and there to his technical stature. But instead, this notation has allowed many players - none of them by any means shining examples of professional integrity - to perpetrate adaptions that were little short of piratical. In fact, I hope to rewrite *Sequenza I* in rhythmic notation: maybe it will be less "open" and more authoritarian, but at least it will be reliable.[27]

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[27]Osmond-Smith, *Two Interviews*, 99.

In 1992 he addressed these issues and released a new, corrected version of *Sequenza I*. Discussing the same issue fourteen years later, and shortly after the release of the second score, he had mellowed his opinion somewhat (or at least his tone):

> At the time I wrote *Sequenza I*, in 1958, I considered the piece so difficult for the instrument that I didn't want to impose on the player specific rhythmical patterns. I wanted that player to wear the music as a dress, not as a straitjacket. But as a result, even good performers were taking liberties that didn't make any sense, taking the spatial notation almost as a pretext for improvisation. [28]

The later reworking of *Sequenza I* is written in standard Western notation, substituting the internal division of a quarter note for the earlier system of measured ticks. This is best shown by a comparison of the same passage from both versions of the score (Examples 1a and 1b):

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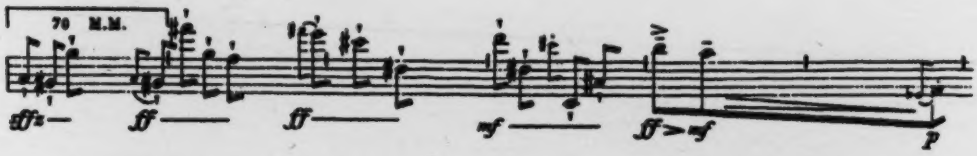
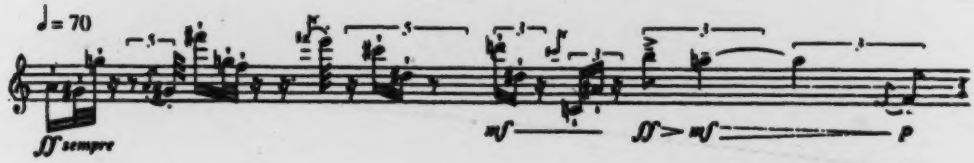
[28]Muller, Theo. "Music is not a Solitary Act," *Tempo* 199 (Jan. 1997): 19.

Example 1a - 1958 version of *Sequenza I*, mm. 1-4



Example 1b - 1992 version of *Sequenza I*, mm. 1-4



In the new score (Example 1b) the rhythmic notation of the first measure of the original (Example 1a) has been transformed from its graphically-based original into two eighth note groupings. The first grouping comprises of a sixteenth, two thirty-second notes, and a sixteenth note rest; the second half consists of a five-tuplet of thirty second-notes (of which four have been combined into a single eighth rest) and an inserted grace note. These two groupings combine to equal the value of a single quarter note. The tempo in the new score (Example 2b) is given as a quarter note with a metronome marking of seventy, thus maintaining the original tempo and approximating an already-approximate notation with a more conventional style of notation. The system of ticks has also disappeared completely. Not all of the reaction to the new version has been favorable. In particular, noted Berio scholar David Osmond-Smith's believes that something has been lost in the translation:

> The fluid spring of the original resolves into simpler relationships, often suggesting an underlying quaver or crotchet pulse for a few seconds. The conventional use of beams to join smaller rhythmic units into quaver and crotchet groups encourages a very different view of structural priorities within the phrase. It would be interesting to hear performances from the two notations side by side: I think one could tell them apart.[29]

The composer has also taken this opportunity to revise many other aspects of the score, usually with a benevolent eye to the performer. For instance, in the original score (Example 2a) the *sforzando* and multiple *fortissimo* markings of the first measure have been replaced in the new version by a single *fortissimo* marking. This simplification seems obvious when it is considered that most of the notes in this section leap wildly over the entire range of the flute and have been given a *staccatissimo* articulation; it seems unlikely that a performer could preserve both the *sforzando* and *fortissimo* dynamic markings while negotiating such dangerous terrain, and even less likely that anyone listening could perceive such a difference. Such solutions can be found on practically every stave of the rewritten score and cannot help but increase the playability of this difficult composition, while maintaining the integrity of the music.

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[29]David Osmond-Smith, "Only Connect...David Osmond-Smith on Recent Berio Scores," *Musical Times*, February 1993, 80.

2.2 *NONES* - A PREVIOUS COMPOSITIONAL MODEL

Just as with the earlier *Chamber Music*, Berio's orchestral composition *Nones* was also inspired by literary sources. In this case the source was the dramatic and often reflective poetry of W.H. Auden, more specifically his poem of the same title, *Nones*.[30] This poem was first published as part of a 1951 collection of the same name and appeared again in *The Shield of Achilles* of 1955. Berio had originally planned for *Nones* to be a large secular oratorio. In the end, the size of the poem made the project unworkable, and from the many sketches Berio salvaged and combined five orchestral episodes to form the more modest, orchestra-only version.

The most basic concept used in the realization of both *Nones* and *Sequenza I* was that of the division of sound material into four separate parameters, which Berio refers to as "dimensions". Each parameter was then assigned its own internal (and also unique) control mechanism. These individual dimensions were then re-integrated into a complete sonic event. That Berio should dissect the compositional process into individual characteristics and re-integrate them was by no means unusual; such partitioning had been used previously in many important serial works. Nor

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[30]This was not the first time Auden's work was used in connection with an avant-garde composer. In 1951 the poet had collaborated with Igor Stravinsky on *The Rake's Progress*.

was his use of these four characteristics in particular - pitch, dynamic, rhythm, and articulation (timbre) - especially remarkable. This method of working was intrinsic to the serialist movement and would have been common practice among the Darmstadt crowd by the time Berio had begun work on *Nones*.[31] The formal declaration of the above-mentioned parameters as "the four characteristics of a sound" probably originates with Pierre Boulez, although it has been suggested that the true originator of this line of thinking is John Cage.[32] It is also worth noting that these particular parameters are the only aspects of sound that are usually capable of being notated in standard western music notation, and therefore the easiest to serialize.

For historical reasons, the pitch series or row was often given greater importance in serialist composition, and in this regard Berio seems initially to have also followed a similar program. *Nones* is based on a pitch series similar to Webern's op.24, the *Concerto for Nine Instruments*,[33] not out

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[31]Occasionally in serialist literature the term intensity is used instead of dynamic, and temporal for rhythm. The use of the term morphological, instead of timbre or articulation is, it seems, unique to Berio.

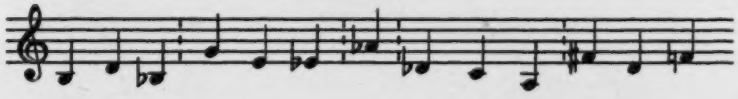
[32]For a summary of this debate see Griffiths, *Modern Music and Beyond*, 29.

[33]The comparison between row structures as used by Berio and Webern owes its origin to Reginald-Smith Brindle, "Current Chronicle: Italy," *Musical Quarterly* 61 (1975): 98-100, as does the explanation of the functioning of *Nones*. See also Michael Hicks, "Exorcism and Epiphany: Luciano Berio's Nones," *Perspectives of New Music* 27 no. 1 (1989): 254-255; and Piero Santi, "Luciano Berio." *Die Reihe* 4

of place given the typical Darmstadt fetishization of Webern's compositional idiosyncrasies. What is less common is the inclusion of a doubled pitch (D), forming a thirteen-note row, instead of the usual twelve-pitch configuration encompassing each member of the chromatic scale once. It seems that even at this early stage, Berio did not subscribe fully to the more-prevalent serialist dogma found in other compositions of the time.

Example 2 - The series used in Webern's op. 24.

Example 3 - The thirteen note row used in *Nones*



Webern's original row (Example 2) has been referred to as a "masterpiece of symmetry".[34] In any case, it is admirable for its rigorous adherence to internal logic. It

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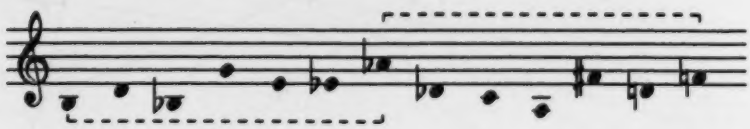
(1958/60), 98-102, for similar discussions of the same material. The diagrams are also from Reginald Smith-Brindle's article but bear an amazing resemblance to Berio's Italian versions found on two unpaginated plates in Osmond-Smith, *Two Interviews*, center of book. While *Two Interviews* was published after Reginald Smith-Brindle's article, they would seem to actually originate from 1953 or 1954.

[34]Kathryn Bailley, *The Twelve-Note Music of Anton Webern* (Cambridge, England: Cambridge University Press), 21.

is constructed from an [014] trichord, or an anchor pitch with two satellite pitches a major and minor third away in the same direction. The remaining three trichords are a retrograde inversion, a retrograde, and an inversion of the original trichord, in that order. Like the Webern row, Berio's series (Example 3) also contains four trichords, but with a single isolated, thirteenth pitch (Ab) interpolated between the second and third groupings. The pitch Ab occupies a central point in both series . There are other similarities. The initial trichords of both series are made up of the pitches B, Bb, and D. Also, Webern's final trichord, and Berio's third, both are comprised of the pitches C, C# (Db), and A. Berio's use of a doubled pitch makes possible an additional device, of two interlocking groups of seven pitches' sharing the central pitch of Ab (Example 4). As the second "septachord" is a retrograde of the first, inverted at the tritone, the series is also a musical palindrome and remains faithful to the ideals of Webernian symmetry and ordering, while violating the sacrosanct law of twelve.

Example 4 - "Septachordal" divisions



This early series of Berio's exhibits two characteristics which were to undergo further development in his later works. A tendency towards the use of series containing multiple thirds was to become a prominent feature of Berio's future compositional style. Prominent examples of this tendency can be found in *Sequenza IV* (1966) and *Laborintus II* (1965), but this tendency is also present to some degree in all of his post-Darmstadt works. *Sinfonia* (1969) also reflected a concern with "the recuperation of a vocabulary of third-based chords."[35] The use of a pitch series which can be segmented in various ways has also been noted by David Osmond-Smith in relation to the cyclic row used in *O King* (1967). This series of 21 notes (but only seven distinct pitches) can also be subdivided in at least three different ways, each exhibiting a different set of compositional characteristics.[36]

Reflecting the internal retrograde character of the series, the pitches of each half were assigned a numeric value sequentially from either end of the series, incrementing towards the central axis pitch (Example 5). Thus the outer pitches were each given the value of one, the next pair inward two, etc. The central Ab was always

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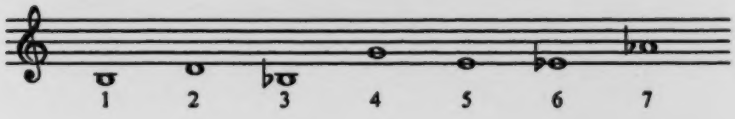
[35]The preceding two sentences both owe their origins to David Osmond-Smith, *Playing on Words: a Guide to Luciano Berio's "Sinfonia"* (London: Royal Music Association, 1985), 6.

[36]Osmond-Smith, *Playing on Words: a Guide to Luciano Berio's "Sinfonia,"* 22-26.

numbered seven:

Example 5 - Pitch ordering of a single hexachord



In practice, Berio appears to have overlapped several different transpositions of this series at the same time. For instance, in the opening measures he uses this series in its original form, on B, as well as its transpositions on Bb, F, and G concurrently.

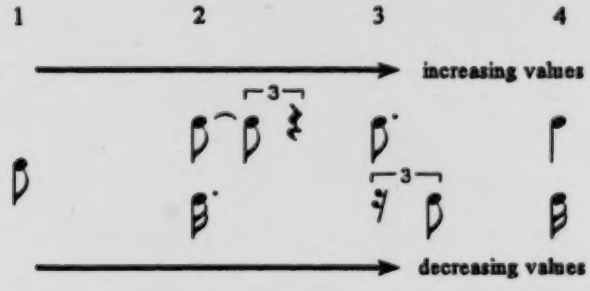
The dynamic system was ordered with values from one to five. However, in the lowest two categories Berio has provided himself with alternates, *pp* substituting for *p*, and *ppp* substituting for *mf*. It is interesting that his alternatives give a higher placement to the quietest value than the two preceding values, instead of establishing a linear scale from lowest to highest. The dynamic of *mp* was not initially used. Figure 2 lays out the dynamics schematically.

Figure 2 - Dynamics in *Nones*

1	2	3	4	5
p	*mf*	*f*	*ff*	*sffz*
pp	*ppp*			

The rhythmic dimension was also governed by a non-linear system of rated values, but this system was much more pronounced. Figure 3 displays these durations and their associated values. Here the eighth note was taken as the lowest value and the remaining values both increase and decrease from this central point; the highest value was given to both the quarter note and, in the other direction, the sixteenth note. This equalization of the largest and smallest values, the outer edges grouped together in opposition against the more moderate and central qualities of an increasing or decreasing range was also an important part of *Sequenza I*.

Figure 3 - Duration system in *Nones*



Perhaps the most interesting of all was Berio's system for assigning a mode of articulation to each note. This dimension was divided into just three categories, of which the first two contain standard articulation devices. The highest value was given to what are commonly described as

extended techniques; tremolo, trill, and fluttertongue.

Figure 4 - Articulation system in *Nones*

1	2	3
non-legato	legato	tremolo
tenuto	staccato	trill
		fluttertongue

In the final step of the compositional process, each of these four parameters were re-integrated under the authority of another regulatory system: all four characteristics must add up to a sum of at least nine or greater. This rating system insures a balance between different aspects of the system. Of course it hardly needs to be pointed out that the use of nine as a control value is a reflection of both the title of the composition and Auden's original poem. However, the number nine has, perhaps coincidentally, been noted to have a place of importance in other analyses of Berio's works.[37]

Curiously, Berio has said that this work had "nothing of Darmstadt or Maderna in it"[38]. Given the chronology, his own near-simultaneous attendance at Darmstadt, the overall Webern-oriented pointillist texture, and the obvious use of

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[37]This has also been noted in Hander-Powers, "Strategies of Meaning: A Study of the Aesthetic and Musical Language of Luciano Berio," 341, 311-344.

[38]Osmond-Smith, *Two Interviews*, 62.

serial compositional techniques (even as explained by the composer in his own lecture notes,[39] and also by Maderna), we can only assume that he is overstating the much greater value he places on the aspects of composition that were not influenced by serialist techniques. In particular he mentions that Nones "develops... the main focus of what was for [him] the main focus of research and musical excitement during those years: the possibility of thinking musically in terms of process and not of form or procedure."[40]

2.3 Dimensions in *Sequenza I*

The four dimensions that form the basis of *Sequenza I* are, as Berio explains, "characterized by maximum, medium and minimum levels of tension." He describes the functioning of his temporal, pitch, and dynamic dimensions as follows:

> The level of maximum tension (which is also an *exceptional* one relative to the norm of conventional playing) within the temporal dimension is produced by moments of maximum speed in articulation and moments of maximum duration of sounds, the medium level is always established by a neutral distribution of fairly long notes and fairly rapid articulations, and the minimum level entails silence, or a tendency to

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[39]Osmond-Smith, *Two interviews*, two unpaginated plates in center of book. These are extremely similar to the diagrams found in Brindle, "Current Chronicle: Italy," 98-100.

[40]Ibid., *Two Interviews*, 62.

> silence. The pitch dimension is at its maximum level when notes jump about within a wide gamut and establish the tensest intervals, or when they insist on extreme registers: the medium and minimum levels follow logically from this. The maximum level of the dynamic dimension is naturally produced by moments of maximum sound energy and maximum dynamic contrast.[41]

Upon first examination, the conditions which constitute a maximum level of tension would appear to have multiple unrelated conditions or even internal contradictions. For instance, the level of maximum tension in the temporal dimension is characterized by both the maximum speed and maximum duration. These two qualities, the longest and the shortest, would seem to be polarized at opposite ends of the temporal spectrum. Similarly, the pitch maximum encompasses tense intervals, wide leaps or extreme registers. Again, there are multiple conditions present here for judging what is the maximum level of tension, intervallic distance and registral placement. The dynamic level would also appear to be problematic, in that its maximum level combines both sustained and quickly changing dynamic levels.

While initially these things may appear unconnected, the association between these initially opposing elements becomes clear if they are considered from the viewpoint of the performer of the piece. That which enables such

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[41]Ibid, 97-99.

disparate factors to co-exist in the same category, the level of maximum tension, what lends internal coherence to each of Berio's dimensions, is the formidable awkwardness of execution involved in such actions. In the simplest terms, these are things that are difficult to perform on the flute. This area of tension arises from a conflict between what the performer would like to accomplish and the instrument itself; the idea and the physical reality. Berio has referred to this as one of the ways in which *virtuosity* functions:

> In the *Sequenzas* as a whole, there are various unifying elements, some planned, others not. The most obvious and external one is virtuosity... Virtuosity often arises out of a conflict, a tension between the musical idea and the instrument, between concept and musical substance.[42]

The maximum level of tension, then, within each dimension is a measure of those actions which are the furthest distance from the idiomatic nature of the flute and its performer. In *Sequenza I*, the level of maximum tension is "also an *exceptional* one relative to the norm of conventional playing."[43]

Consider for a moment the dimension of pitch as it relates to a flautist. The playing of large intervallic

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[42]Ibid, 90-91.

[43]Ibid, 98.

leaps between pitches requires more than the placement of the fingers upon new keys; the basic techniques of sound production such as embouchure, air pressure, and even the angle at which the instrument is held may all require adjustment. The difficulty is increased if the leaps are continuously repeated, constantly moving between the high and the low, the extreme registers of the flute. Just as much of an obstacle for a performer are sustained pitches in the highest part of the range (or occasionally the lowest), which can become exceedingly unstable as they move farther from the usual compass of sound production. The very short and the very long are normally considered opposite extremes, but they are the same in that both are the territory of a highly skilled performer. Likewise, both very loud and very quiet dynamics (and the rapid movement between) require the invocation of great amounts of instrumental skill.

What makes Berio's approach so extraordinary is the novelty of such thinking when contrasted against that of other serialist composers of the time. An early (but by no means isolated) example is the system employed by Pierre Boulez in his *Structures Ia* for two pianos. Essentially an expansion on the compositional process used by Olivier Messiaen in his *Mode de valeurs et d'intensites* (though leading to a completely different sound result), the piece successfully applies independent serialization to what are basically the same four divisions later used by Berio:

pitch, duration, attack(timbre), and dynamics.[44]

Historically, the first sound characteristic to be serialized was pitch, in the works of Arnold Schoenberg. This yielded the number twelve, the total number of octave-equivalent pitches available in the chromatic scale, which was then applied to all of the remaining sound characteristics, a necessity required by the serialist ideal of universality. In *Structures Ia*, the application of such a series to the dynamic parameter yielded the following series:[45]

Figure 5 - Dynamic series in Boulez's *Structures Ia*

1	2	3	4	5	6	7	8	9	10	11	12
pppp	*ppp*	*pp*	*p*	*quasi p*	*mp*	*mf*	*quasi f*	*f*	*ff*	*fff*	*ffff*

There are several difficulties in the system of *Structures Ia* that Berio's approach addresses. First, the succeeding dynamic levels are all numbered consecutively from the lowest to the highest, a display of the entire range of dynamic possibilities available in standard western

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[44]Messiaen also serialized these four parameters but linked them under the same order numbers at a pre-compositional level; the same pitch was always presented with the same dynamic, duration, etc. Boulez's innovation was to separate these parameters further and deal with them autonomously. For a more complete discussion see Richard Toop, "Messiaen/Goeyvaerts, Fano/Stockhausen, Boulez," *Perspectives of New Music* 13, no. 1 (1974): 141-169.

[45]Boulez also employed a second serial ordering of these and other elements in *Structures Ia*.

notation. Just as with a pitch based series, the dynamic levels are chosen based on their numerical placement and ordering within a series of values. By its very nature such a system requires that all values be functionally equivalent; no single value, represented by its place in the system, is more important than another. But while all of these values may appear equal on paper, they would not seem so to a pianist. The dynamic of *ffff* obviously requires a greater exertion than a medium dynamic such as mezzo-forte. However, the performance of *pppp* requires an extremely controlled touch; a piano key that is depressed too slowly or lightly will not sound at all. These dynamics are both at the limits of the performer's ability, not to mention that of the hammer mechanism of the piano, but Boulez's system takes no account of this. Secondly, while the application of the number twelve may make sense with regard to the area of pitch (the Western octave being divided into twelve enharmonically distinct pitches), attempting to divide the dynamic realm in the same manner requires the usage, or perhaps invention, of several uncommon notations. This is because there are simply not twelve dynamic levels available within standard practice. Ignoring the dubious nature of the very highest and lowest levels (rarely if ever seen in music), the composer has also inserted two "quasi" dynamic levels into his catalog, *quasi p* and *quasi f*, to make an even

dozen. While all of these dynamics are theoretically performable, and a great deal more, such a task poses an extreme challenge to any pianist. It seems doubtful that *Structures Ia* could ever be performed as notated except by a computer. And even if this absurd task could be carried out, very few listeners, if any, would be refined enough to perceive such subtleties. This was essentially one of the main criticisms made by Ligeti in his influential analysis of *Structures Ia*:

> Whereas the predetermined pitches can be exactly realized on the piano, and the durations, after sufficient practice, relatively exactly, a consistent performance of these intensity-values [dynamics] is hardly possible. For pitches are ready-made on the piano... dynamics can only be approximately estimated by the performer - this is not necessarily a fault, since listeners, too, experience music according to proportions that are subjective rather than calculated. However, it is problematic to differentiate dynamics so subtly as this; the regions of the individual intensity-values overlap, and one can certainly not be sure, for example, that a *p* at one point in the work will not be louder that a *quasi p* or even *mp* at another point.[46]

Similar problems occur in Boulez's remaining parameters, and this points to a compositional program centered on a theoretical potential, instead of being

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[46]György Ligeti, "Pierre Boulez: Decision and Automation in *Structures Ia*," *Die Reihe* 4 (1958/60): 42.

centered on a practical reality. It seems clear that Boulez placed a greater importance on the abstract idea and not on the performable, or the perceivable. Of course, we must keep in mind that when Boulez composed *Structures Ia*, it was one of the first compositions of its kind, under the influence of a largely untested ideology, and that *Sequenza I* follows it by at least eight years. Boulez was looking ahead at a future methodology; Berio had the luxury of reflecting upon a movement that was beginning to come apart. Nevertheless, it is apparent that the methods employed in composing *Sequenza I* are an attempt to solve some of the problematical aspects of earlier serialist compositions. Boulez himself later became extremely critical of the deterministic methods employed by himself - *Polyphony X*, composed using similar methods as *Structures Ia*, was withdrawn after its first performance[47] - and later extended his criticisms to the entire serialist movement.[48]

2.4 The Morphological Dimension

Somewhat removed from the other three, and perhaps the most interesting of Berio's dimensions, is the special case of the "morphological" dimension:

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[47]Griffiths, *Modern Music and Beyond*, 39-40.

[48]Pierre Boulez, *Conversations with C'elestin Deliège* (London: Eulenberg Books, 1976), 58-59. For the composer's explanation of the compositional system(s) employed in both pieces see Pierre Boulez, *Orientations* (Cambridge, Mass.: Harvard University Press, 1986), 199.

> What I call the morphological dimension is placed, in certain of its aspects, at the service of the other three [dimensions] and is, as it were, their rhetorical instrument. It seeks to define degrees of acoustic transformation relative to an inherited model which in this case is the flute with all its historical and acoustic connotations. Thus a level of maximum tension within the morphological dimension is obtained when the image, my image of the flute, is drastically altered with flutter tongues, key clicks and double stops (two notes at once).[49]

While this idea has its origin in the serialist parameter of timbre, it contains some important differences in conception as well. Because of the monotimbral nature of the flute, timbre here is more a function of the method of sound production than a function in an ensemble or orchestrational sense, as a means of alternating melody notes or lines between different instruments or groups of instruments. On a purely technical level, this dimension governs different modes of articulation, as it also does in *Structures Ia* (for two pianos).

Of all of the parametrical divisions employed in *Sequenza I*, this is easily the one most clearly described by Berio as well as the easiest to discern both visually and aurally. In its simplest terms, the morphological dimension reaches its maximum level of tension whenever an extended performance technique is invoked, such as flutter tonguing,

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[49]Osmond-Smith, *Two Interviews*, 97-99.

multiphonics, or the loud clicking of flute keys as a direct sound source. In flutter tonguing "the tongue is fluttered or trilled against the roof of the mouth, just behind the front teeth,"[50] giving the notes a buzzing quality. The multiphonic technique (harmonics) allows for the production of two or more notes on an instrument usually only capable of producing a single pitch at any one time. What Berio calls a key click occurs when the keys of the flute are not used in their standard role of altering the length of the air column to produce different pitches, but instead are slammed closed with excessive force to produce directly a "clicking" sound. These techniques just described are specific, if not to the flute, then at least to the woodwind family (although flutter tonguing can be accomplished on a brass instrument as well). They are challenging in two respects: not only are they technically difficult to perform, but also require a specialized knowledge and training that would likely not have been available to most players at the time. Even today, these are all generally considered to be beyond the normal requirements of flute technique, although they are now in much more common usage than when *Sequenza I* was composed, and any advanced or orchestral level performer is expected to have some competence in these areas. In 1958 these would have been as

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[50]Randel, ed., *The New Harvard Dictionary of Music*, 864.

much a sign of virtuosity as Paganini's use of left-handed pizzicato had been in his time.

Berio also suggests that, in addition to the performance difficulty, these techniques also represent a shift in the historical sound image from that of previous usages of the flute.[51] In 1958 the sound produced by these techniques would have been considered quite distant from practically everyone's sound image of the flute. Only a few previous solo flute compositions had made use of these techniques at all, the most notable precursors being Edgar Varese's *Density 21.5* (which made imaginative use of key clicks and an extremely angular writing style) and Andre Jolivet's *Five Incantations*.[52] The use of extended techniques on woodwind instruments would not become more common until the publication of Bruno Bartolozzi's *New Sounds for Woodwind* in 1967[53], a treatise on many extended and experimental techniques for several members of the woodwind family. This work became extremely influential as a standard reference for both composers and performers alike, and it is generally credited with the widespread proliferation of multiphonics and other non-standard sound

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[51]Osmond-Smith, *Two Interviews*, 97.

[52]Artaud, "Aspects of the Flute in the Twentieth Century," 141-150.

[53]Bruno Bartolozzi, *New Sounds for Woodwind*, 2d ed. (London: Oxford University Press, 1982).

possibilities of the kind pioneered in *Sequenza I*.[54]

While Berio does not give a description of the minimum and medium levels of tension of the morphological dimension, we can make a number of inferences from his treatment of the analogous parameter in *Nones*[55]. First, in *Nones* this dimension is divided into three categories, each of which has been assigned a different numerical weight within the compositional system. This bears a striking resemblance to Berio's description of the minimum, medium, and maximum levels of tension in *Sequenza I*. Given the relative proximity of the two compositions it seems likely that Berio's treatment of this parameter is probably quite similar in both cases, and that he was already beginning to think "morphologically" as far back as 1954.

The *Nones* description also identifies an additional function of the morphological dimension. While the other three dimensions determine when, where, and how loud a note will sound, the articulative dimension determines the way in which a note is performed, not just with regard to extended techniques but also whether a note is to be held (*legato, tenuto*) or cut short (*staccato, staccatissimo*). Thus the morphological dimension acquires a second function beyond the pure governing of timbre and in some ways intrudes upon

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[54]Artaud, "Aspects of the Flute in the Twentieth Century," 137, 158.

[55]See Figure 4, page 33.

the temporal dimension: while the temporal dimension determines when a note begins, the morphological dimension is responsible for the duration; it determines when a note will *end*.

In addition the *Nones* example reveals that, beyond what is mentioned directly about *Sequenza I*, Berio also classified tremolos and repeated notes as morphological phenomena (which is also confirmed by my analysis). A tremolo is the rapid alternation of two distinct pitches. Different pitches are usually performed by quickly alternating between a single key or groups of keys. Repetitions of the same pitch are often articulated, on a woodwind or brass instrument, by means of double or triple tonguing.[56] This is notated in *Sequenza I* by a group of four small dots over a notehead, indicating that the note is to be repeated four times. The distinction is not explicitly made which technique is to be used, and which is to be left to the performer's discretion. The use of four dots, and four notes would likely be approached by a performer as two double-tongued groupings. Tremolos and repeated notes are not generally considered to be extended techniques in the same way as flutter tongues or key clicks, but they are similar in function in that they are characteristic, though not unique, sound devices of the flute.

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[56]For more information on both the tremolo and the trill see the definitions in Randel, ed., *The New Harvard Dictionary of Music*, 868, and 869-872, respectively.

There is considerably more compositional freedom within the morphological dimension than is permitted within the other three dimensions. While the level of tension determines whether an extended technique will be used or not, the choice of which technique to use appears to have been left up to the context of the passage. A list of the different types of extended techniques used in *Sequenza I* and the notational symbols used in the score is given in Figure 6.

Figure 6 - Notation of extended techniques

2.5 The Density Control Mechanism

In *Sequenza I* Berio has devised a system within which each sound characteristic can be considered both individually and comparatively. The division of sound into four separate dimensions allows for individual consideration of each aspect of the sound material. The relationship between divisions is not completely autonomous, however; the further subdivision into three levels of tension bridges the newly-formed gap between dimensions, allowing disparate sound characteristics to be compared equally. It is precisely this comparative feature which makes possible a

further, largely unseen control mechanism:

> ...The extreme density of the melodic writing is ensured by the fact that at any one time at least two of the four dimensions that I've described here are at the maximum level of tension.[57]

This is similar to the system of global organization used in *Nones*. In the earlier composition the sum total of all parameters had to add up to nine or more. The number of divisions in each parameter were of irregular amounts (7, 5, 4, and 3) corresponding to the number of events or possibilities within each parameter. *Sequenza I*, following after *Nones*, is a much simpler system in operation but more complex in conception. Each dimension is organized through a single concept, virtuosity, and functions as a yardstick of tension between performer and instrument. The maximum category of each dimension is also the most difficult, the medium less so, etc. This kind of organization allows the comparison of completely different sound parameters at the point of intersection, the performer himself or herself.

If *Sequenza I* appears, upon cursory examination, to function in a manner similar to that of other serial compositions, it is because they all subdivide material into numbered categories. The difference lies behind this surface layer. The system used in *Structures Ia* (and to lesser

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[57]Osmond-Smith, *Two Interviews*, 98-99.

degree, *Nones*) lays out the entire range of possibilities of each dimension, assigns a number to each and assumes that they are now equivalent, as if the very act of enumeration could somehow bridge the enormous division between categories. However, the fact that two items are given the number twelve does not mean they have anything in common besides that label. Beyond the label, there is no reason to equate these items, or even for the parameters themselves to exist. The system of *Sequenza I* also divides and numbers, but Berio's categories work because they connect to a reality of both sound and physicality that extends beyond mere tallies and increments. Perhaps Berio's dimensions do not appear to be as simply organized as those of *Structures Ia*, yet this is because they owe their origin to a careful consideration of sound and its methods of production.

III

Analysis of *Sequenza I*

> In science, theory involves treatment of underlying regularities in phenomena and often the planning and prediction of the future on the basis of those regularities. In music, however, we create, to a certain extent, the material for analysis...[58]
>
> -Luciano Berio

In the development of a method by which the levels of maximum tension in *Sequenza I* could be analyzed, several areas were of concern almost from the outset. The most apparent of these was the resistence of the notational system to the application of standard analytical techniques. This is most obvious in the use of a spatial or graphically-based temporal system, instead of the standard temporal or metrical notation upon which the majority of existing analytical systems rely to refer to the most detailed level of events. To discuss the temporal situation of a specific note would likely require physical measurements of distance taken against the original score. A second concern was the necessity of devising a system that dealt with the entire

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[58]Berio, "Meditation on a Twelve-tone Horse," 8.

composition, as opposed to only a few shorter sections. It seemed impossible to discern Berio's large scale formal plans without an analysis of the entire composition, and an accommodating analytical method.

Initially, an attempt to uncover conventional serial structures was considered and, after a few attempts, rejected. There were two reasons for this. First, while there is much evidence of the use of serial row structures, especially in the pitch dimension, it seems almost impossible to uncover any kind of complete serial statement, although some potential fragments can be observed, and have been documented by others.[59] These seem to hint at the use of serial procedures which have been manipulated, filtered and mutated in such a way as to make the original materials unrecoverable, despite Artaud's predictions to the contrary.[60] More importantly, what little serial information is available does not seem to coordinate with any other significant features of *Sequenza I*. Overall, this gives the impression that serial procedures, if employed at all, are being used primarily as a means of continuously generating source material, instead of determining significant formal or structural elements.

The solution that best met all requirements was to

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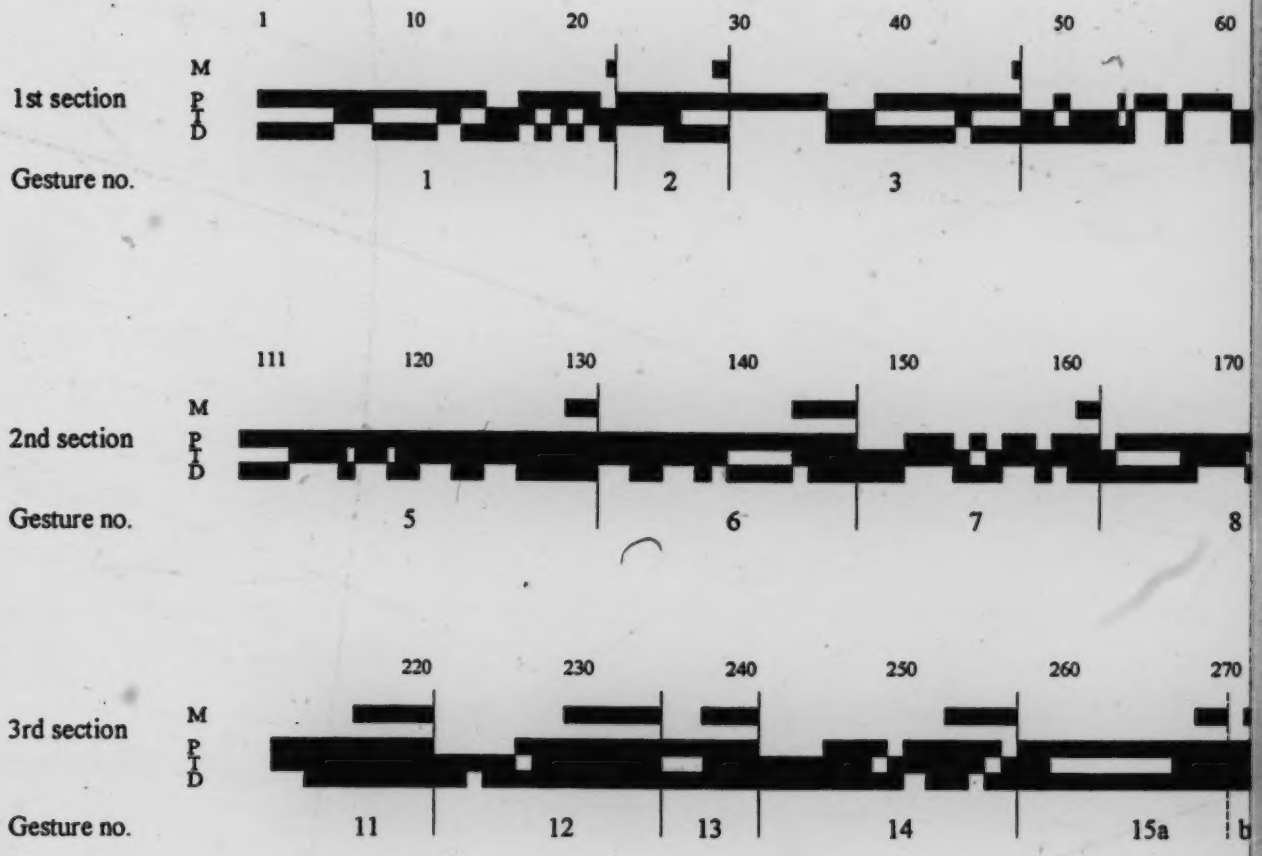
[59]For a discussion of the serial characteristics of *Sequenza I*, see Osmond-Smith, *Berio*, 30-32. Also see Artaud, "Aspects of the Flute in the Twentieth Century," 151-152.

[60]Ibid., 151.

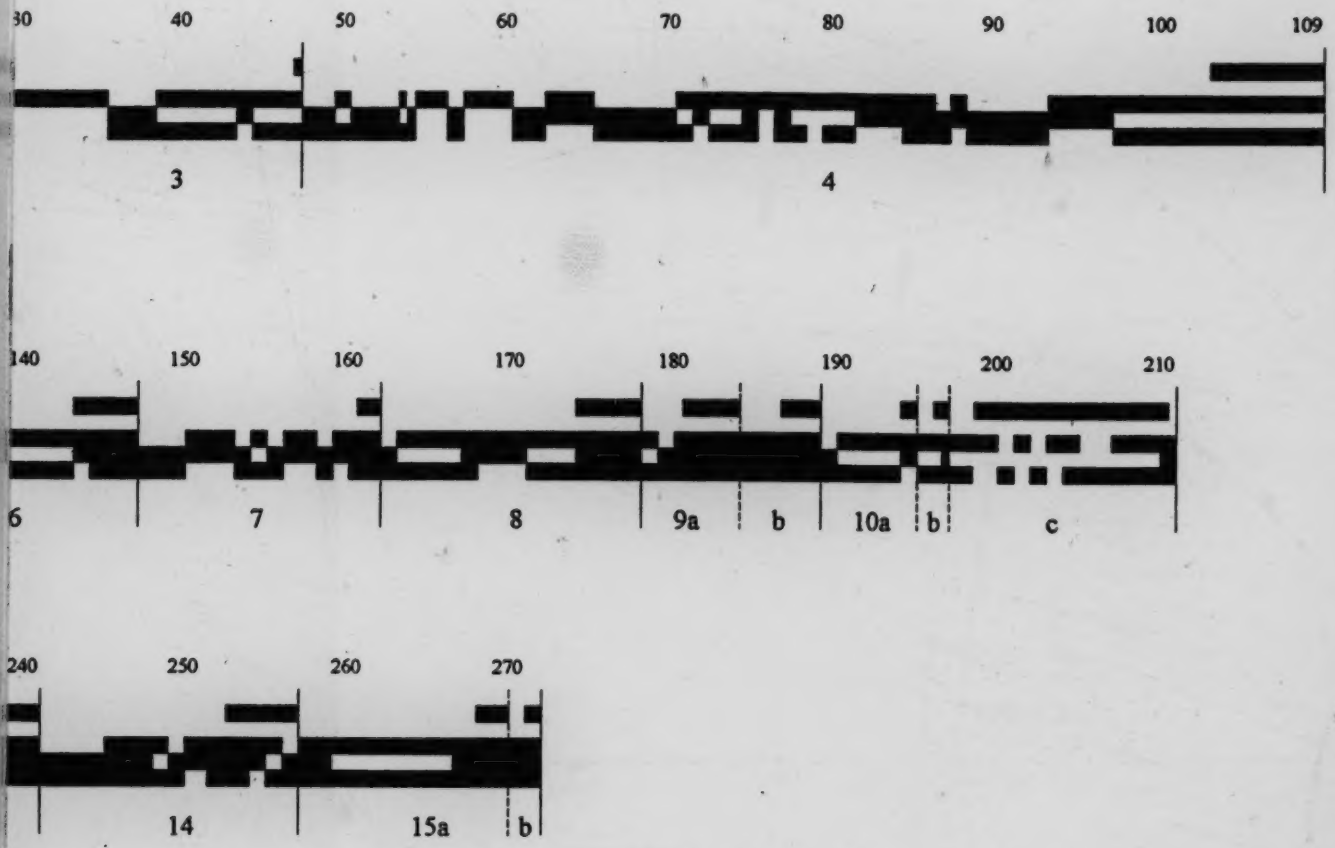
analyze the maximum levels of tension throughout the entire composition on a measure by measure basis. The criteria for the maximum level of tension within each dimension were determined from two main sources: a) Berio's somewhat enigmatic comments on the compositional technique employed in *Sequenza I*, and b) printed sources discussing *Nones*. As I was not concerned with the minimum and medium levels of tension within the composition, I simply divided all of the possibilities within each dimension into two categories, maximum and non-maximum levels of tension. Using these guidelines, I then evaluated each measure of the entire composition for the maximum level of tension within each dimension. The exact results of this procedure are presented in Appendix A. This list of information is somewhat impenetrable, however. As an aid to the reader, the entire chart has been transcribed into a single-page graphic representation on page 53 (Figure 7). In this graph a maximum level of tension is represented by a single black square, equivalent to one measure. Each dimension is represented by its own individual row of such squares, and labeled by the first letter of their names: D[ynamic], T[emporal], P[itch], and M[orphological] (from bottom to top, and in the same order as their accompanying categories in Appendix A).

Such a table must be used with some caution, however. As a result of the time-space notation involved, each

Figure 7 - Gestural and Formal Divisions



- Gestural and Formal Divisions of *Sequenza I*



measure only allows for a single classification. Occasionally events of the type I am concerned with do not completely coordinate with the measure divisions. Most of these situations have been dealt with by dividing measures secondarily, indicated with either A or B for the first and second halves, respectively. In some circumstances events have been necessarily accumulated to form a single categorization of the entire measure.

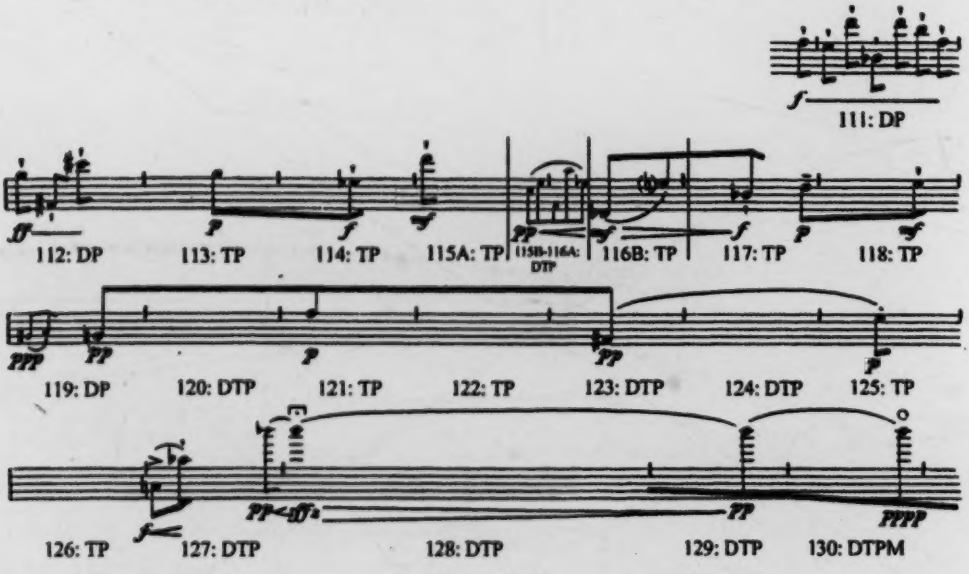
Here I have attempted to represent the overall effect of the measure and ignored small elements that seemed irrelevant; an example of this type of situation would be a single medium size pitch leap within a group of very large leaps, in which case I would have defaulted to the greater number of larger values. Also, not all of the measures in *Sequenza I* are of the same duration; a few measures extend several inches on the page or are marked by a *fermata*. Both of these notational devices are meant to indicate, in a less than precise manner, that the events within these measures are to be sustained for greater lengths of time. However, both Figure 7 and the table in Appendix A make them appear to be of the same length as any other measure. It is for these reasons that I caution the reader to keep in mind that both the chart and the graph are approximations of the larger compositional processes of *Sequenza I* and are most useful as a tool for the study of that particular aspect.

My analysis reveals a recurring basic pattern of

interactions between the maximum levels of tension of the four dimensions. This underlying pattern, or "gesture" as I will refer to it from now on, is continuously repeated throughout the entire composition in a cyclic fashion. The gestures are marked by the use of vertical lines and are individually numbered in Figure 7.

A sample of such a gesture can be found in measures 111-130 (Example 6). The measure numbers and the appropriate

Example 6 - Measures 111-130 of *Sequenza I*



dimensional maximums have been placed underneath the score excerpt. The first two measures, 111-112 clearly present difficulties for a performer in two areas: dynamics and pitch. The use of extreme dynamic markings (*f* and *ff*) indicate a maximum level of dynamic tension. Likewise the

extreme leaps between pitches designate a maximum level of tension within the pitch dimension. The number of pitches articulated, however, is approximately analogous to, at most, a sextuplet and is well within what would be considered a normal level of rhythmic activity. Measures 113-115A present a contrasting phrase. Unlike in the previous three measures, the distances between notes, both in physical distance on the page as well as the temporal relationships they represent, have been increased dramatically, resulting in a maximization of the level of temporal tension. Such an adjustment does not occur without a reaction, however. This increase in one area has been compensated for by a reduction within the dynamic dimension to a group of more common levels: *p*, *f*, and *mf*. Note that the actual duration of each note is determined separately from its temporal placement and is considered irrelevant here. The duration of a note is in part a function of its articulation marking (legato, staccato, etc.) and is determined by the minimum and medium levels of tension within the morphological dimension.

Crossing over the division between measures 115 and 116 is a small section of faster grace notes. This has a low dynamic level, extremely quick articulations, and some very large pitch leaps. This is the first instance within this gesture of three dimensions being at their maximum levels of tension, accomplished by an increasing level of dynamic

tension; the other dimensions remain in their previous state. Measures 116B-118 revert to the previous temporal and dynamic maximums, and similar material as found in measures 113-115A. This alternating addition and subtraction of the dynamic dimension at its maximum level continues for the next ten measures until measure 130. From measures 127 to the first half of measure 130, the pitch, temporal and dynamic dimensions enter an area of relative stability at their maximum levels of tension. In fact, in real time this grouping likely continues on for much longer than just the three measures indicated in Figure 6, since the flautist's high B in measure 128 is marked with a *fermata*, extending its duration for "an unspecified length of time."[59] In the last half of measure 130 the remaining dimension, the morphological, is increased to its maximum level of tension, in effect adding it to the remaining three. This achieves the maximum level of possible performance difficulty, continuing through measure 131 (not shown).

Example 6 displays a number of characteristics from which we can extract a standard model of gestural operation applicable to *Sequenza I* as a whole. Every gesture within *Sequenza I* contains, to a greater or lesser degree, these basic qualities. As a standard model, a gesture has three fundamental characteristics:

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[59]Berio, *Sequenza*, (1958), performance notes.

1) an initial section consisting of a pairing of the pitch, temporal, or dynamic dimensions at their maximum levels of tension.

2) an ending section in which the tension level of the morphological dimension is increased to its maximum, bringing the gesture to completion.

3) a connecting passage through which the overall performance difficulty is increased through interactions between dimensions at their maximum level of tension.

These sections are described in greater detail below.

At the outset of each gesture two, and only two, dimensions are paired at their maximum level of tension at any one time. Since the use of the morphological dimension at its maximum is always reserved for the end of each gesture, only three combinations of the remaining dimensions are possible: pitch-dynamic, pitch-temporal, or dynamic-temporal. In opposition to this, a gesture is always completed by an increase in the level of tension of the morphological dimension. Usually this happens when the other three dimensions have already been increased to their maximum levels, although there are instances where this is accomplished with only two. Since the last dimension to reach its maximum is always the morphological dimension, the ending of each gesture is always signaled by the inclusion

of an extended performance technique, serving as a final gestural "goal".

It is significant that a gesture proceeds from two to four (or at times, three) maximized dimensions. In Berio's description, at least two dimensions must be at their maximum level of tension at any single moment.[60] This, then, is the lowest common denominator within the system. Likewise, there are only four dimensions available, and the maximization of these four dimensions represents the system's full potential. These are the most-extreme possibilities within Berio's prescribed compositional approach. Every change or variation from a static repetition of two maximized dimensions is an increase in difficulty of the actions required of the performer, and a motion from the lowest to the highest level of difficulty.

Between these opposing elements is a connecting passage, bridging the distance between two and four, the least and the most difficult. I have identified several different technical devices which are used to facilitate these transformation. It must be stressed that these devices do not function within the dimensions themselves, but as regulatory processes between dimensions, determining which will be at their maximum levels of tension at any one time.

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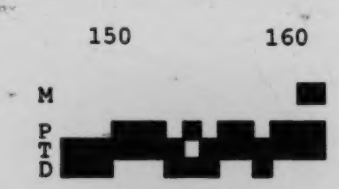
[60]Osmond-Smith, *Two Interviews*, 98-99.

Figure 8 - Interchange technique

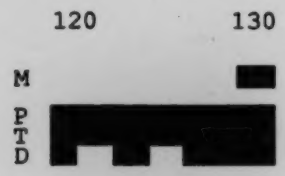


The initial technique employed in this regard is an interchange between different maximized dimensions, an example of which is presented in Figure 8. This is most often the first developmental technique to be found within a gesture and consists of increasing the tension of one dimension while diminishing another as compensation. It is less common for all three possible combinations to be interchanged; usually such interchanges will be restricted only to two dimensions. Furthermore, as any two non-morphological combinations will contain a single common, maximized dimension, this gives the impression of two dimensions trading off while a third stays constant throughout. In general I have noticed a tendency towards the use of the pitch dimension as the common one, resulting in fewer occurrences of the temporal-dynamic maximalizations than of the other two possibilities.

A second device used to increase the difficulty of a passage is through an increase or decrease in the number of dimensions being maximalized at any one time. In this device, instead of an exchange or trading off two different

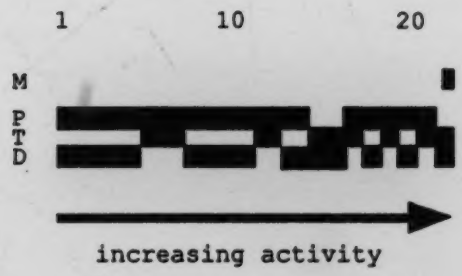
dimensions, a third dimension is added to a combination already in use. This always results in the maximization of the pitch, temporal, and dynamic dimensions, since the morphological dimension is being reserved for the end of the gesture. It is unimportant which two dimensions had previously been at their maximum level of tension before the additive process; the addition of the third always results in the same configuration. Similarly, a dimension is sometimes subtracted from this group of three, leaving a combination of only two dimensions. The technique of maximalizing the morphological dimension as the end of the gesture is, of course, a special use of this. A representative example illustrating these techniques can be found in measures 120-131 (Example 6), of which the accompanying graphic section is given below (Figure 9). In this example, the dynamic dimension at its maximum level of tension is added and subtracted from the pitch-temporal combination. At the end of the gesture the morphological dimension is added to the other three dimensions (Figure 9):

Figure 9 - Addition/subtraction technique



In addition to the interchanging and additive techniques, one additional method is used to increase the difficulty of a gesture. As each gesture proceeds, the length of time in which a particular material is used will often be shortened in relation to its extension at the beginning of a gesture. This increase of activity eventually reaches a point where combinations interchange on a measure by measure basis, usually occurring in the measures immediately before the addition of the morphological dimension. It is worthwhile to consider this from the performer's point of view. At the outset of each gesture the performer must deal with technical difficulties in just two areas for relatively lengthy intervals, often five or six measures; as a gesture proceeds and the rate of maximalization-exchange is increased, a performer has less time to adjust to each new set of difficulties. As any performer knows, it is one thing to be able to carry out a difficult task in isolation; to switch between difficulties in the context of a performance requires an entirely different set of skills, and so this technique shows Berio's keen understanding of actual performance. The first gesture of *Sequenza I* is a good example of such an increase of activity (Figure 10):

Figure 10 - Increase technique



To summarize this process: within a single gesture, the level of performance difficulty is gradually (or occasionally not so gradually) increased through the manipulation and maximalization of the four dimensions, until it reaches the highest level of difficulty. Berio has described the role of this system of parameters in controlling the density of a passage:

> It's the principle of *more* or *less* that governs the flute Sequenza, if I can put it that way. It's used to control the density of the melody as it proceeds. I mean by that a qualitative control of density and not merely - or not necessarily - a control of the quantity of events at any given moment.[61]

A manipulation of the maximum level of tension within the various dimensions, the density of the melody, and the difficulty of performance, can be controlled and manipulated in a highly sophisticated manner. As Berio indicates, an

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[61]Osmond-Smith, *Two Interviews*, page 97.

increase in density does not necessarily translate into more events, but rather produces events of greater difficulty to the performer.[62]

This movement from the lowest to highest levels of difficulty is not dissimilar to the traditional tonic/dominant relationship found in tonal music of the common-practice period. The traditional cadence itself has often been described as a pattern of tension and resolution, a characteristic the gestural system shares. It seems reasonable to suggest that this system of cyclic gestures is a kind of post-serial translation of traditional practices into a genre in which tonal harmony had ceased to function.

A comparison of the ways in which the individual dimensions are used throughout *Sequenza I* exhibits a continuity in approach that, for lack of a better term, we might label the "form" of the composition. However, the use of such a term introduces its own complications, largely because the term itself has been used in many different ways. In this thesis, form is simply meant to describe the organization of contrasting materials throughout the entire composition, at a very high level of abstraction. The form of *Sequenza I* was derived strictly from my own analysis, and results from contrasting differences in usage of the four simultaneous dimensions over the course of the entire piece. I have divided *Sequenza I* into "sections", which are

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[62]Ibid.

labelled in Figure 7. Naturally, other interpretations using other criteria are possible, and welcomed.

Formally, *Sequenza I* divides into three main sections, displayed in Figure 7 on the left hand side of the graph. The first extends from measure 1 through 109. In this initial section there are usually only two dimensions at their maximum level of tension at any one time, with the exception of the case of the added morphological dimension near the end of a gesture. This section of the composition is closest to Berio's description of the density control mechanism, which emphasized the use of only two dimensions at their maximum level of tension. In fact, excluding the morphological dimension and its special cadential role, in the entire first section of the composition this two-dimensional boundary is only exceeded in five of the 109 measures: 26, 75, 77, 85, and 86.

There are four occurrences of the morphological dimension at its maximum level of tension in the first section: the second halves of 22 and 47, measure 29, and measures 104-109. In this section the morphological dimension is often used at its maximum level of tension with only two dimensions at any one time. The final gesture of this section (Gesture 4) is the longest in the entire composition, equal to approximately one fifth of the total length, and it occupies almost an entire page of the original score.

The second and third sections are marked by an increase in the overall density created by interactions between the three non-morphological dimensions. The usage of the morphological dimension at its maximum level also increases and occurs more regularly. The second section, from measures 110-211, contains some of the clearest examples of the gestural model as I have described it, notably Gestures 5-8. I have divided Gestures 9 and 10 into subsections. While they are fully-functional gestures in their own right, the divisions indicate what is really just an addition and subtraction of the morphological dimension. The final gesture of Section 2 is conspicuous, in that the morphological dimension is increased to its maximum level of tension well before all of the other dimensions are increased to their maximums. The "cadence" of all four maximized dimensions seems quite minimal here, only occupying the first half measure 211. This is an illusion given by the graphing technique. The actual measure is the length of approximately two staves and is also marked with a fermata.

The final section of the composition, from measures 212-272, is clearly the most densely packed region of the entire composition and freely combines the different techniques of density control. The four maximized dimensions are used together with greater frequency. As a result of this increase, the morphological dimension becomes less

prominent, losing some of its cadential status. In a sense, it begins to achieve a level of equality with the other dimensions. The end of the last gesture of *Sequenza I* is one of the quietest passages in the entire composition; this gives an example of how greater density can produce unexpected results, and it is an interesting reversal of what would normally be expected of a solo composition designed to explore instrumental virtuosity.

Berio has said that *Nones* was his first step in "thinking musically in terms of process and not of form or procedure."[63] Michael Hicks has defined the distinction between the two as follows: "for Berio, `procedure' denotes a series of discrete steps to be taken, while `process' denotes a continuous, organic development."[64] As Berio does not make the distinction between the two terms clear, such a definition helps clarify matters considerably. The system of cyclic gestures is clearly such a process. However, there is also a second process that functions over the entire course *Sequenza I*, in which the usage of all four dimensions at their maximum level of tension is gradually increased. Inversely, the functional prominence of the morphological dimension is decreased, moving closer to that of the other three dimensions. In *Sequenza I*, then, there are two

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[63]Osmond-Smith, *Two Interviews*, 62.

[64]Hicks, "Exorcism and Epiphany: Luciano Berio's *Nones*," 256.

processes, one cyclic, the other a gradual development. This would not be the first time Berio would use that kind of formal construction, also employing it in the aptly titled *Circles*, composed in 1960, two years after *Sequenza I*:

> in *Circles* everything repeats, and everything tends to turn back on itself,...whilst certain particular characteristics tend to reverberate and to propagate themselves throughout the entire work.[65]

These two processes, the gestural and the cyclic, share a similar characteristic. Both increase in density, moving from the lowest level possible and fulfilling the full potential of their systems. In this way both aspects are really expressions of the same process, the large process becoming a kind of meta-version of the cyclic one. Such a linking of different levels within a work was also one of the themes of Berio's work at the time:

> I found it natural...to search for a creative continuity between the smallest and largest elements of a form.[66]

This search for a union between such diverse extremes is an important theme of not just the compositional process, but of the basic nature of the entire work. The effect is

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[65]Osmond-Smith, *Two Interviews*, 125.

[66]Simon Emmerson, "Luciano Berio," *Music and Musicians* 24 (Feb. 1976): 24.

perhaps something like a kaleidoscope, in that a simple, almost invisible process is used to generate continuously a new level of surface detail, namely constant variation from constant repetition. The animated exterior of *Sequenza I*, inherent in any performance, masks this relatively straightforward underlying plan. To be sure, these structures are audible, but the listener may not be in the best position to perceive them; that vantage point is reserved for the flautist navigating this precise and difficult piece.

Conclusion

> I have discovered certain fundamental aspects of music which have never been placed in question. The functioning of sound, for example.[63]
>
> -Luciano Berio

In his 1958 critique of serialism, Ligeti critiqued the aspects of serial technique that employed automatic procedures, referring to the use of series or row structures to control all aspects of music, or at least what could be notated. Ligeti felt that the constant use of such procedures subjected musical materials to a "leveling out process."[64] This was inherent in the basic concept of serialism itself:

> The postulation of series means, here, that each element should be used with equal frequency and should be given equal importance. This leads irresistibly to an increase of entropy. The finer the network of operations with pre-ordered material, the higher the degree of leveling-out in the result. Total, consistent application of the

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[63]Edith Walther, "Dialogue Luciano Berio," *Harmonie* 117 (10 May 1976): 45; trans. and quoted in Hander-Powers, "Strategies of Meaning: A Study of the Aesthetic and Musical Language of Luciano Berio," 106.

[64]Ligeti, "Metamorphosis on Musical Form," 10.

> serial principle negates, in the end, serialism itself.[65]

By tightly defining the pre-compositional aspects, a composer relinquished the ability to direct the overall flow of the composition. The product of such automatic procedures, which he notes is really no different from those constructed through the chance procedures employed by John Cage and others, can only be controlled:

> when the highest possible degree of order is sought by means of decisions made by the composer in the process of composition."[66]

In his view, both automatism and chance procedures have a similar flaw, in that both result in the distancing of the composer from the process of composition. In the same year Berio would also publically react against aspects of serialism. In Berio's view, the problem lay not in the use of serial techniques themselves but rather in the lack of creative application *by their operators*:

> Of themselves the procedures of serialism guarantee absolutely nothing: it is always possible to serialise worthless ideas just as it is possible

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[65]Ibid.

[66]Ibid, 10-11.

to versify foolish thoughts."[67]

In later years he would clarify this position:

> What I'm against is the use of serialism in the abstract sense without taking into consideration the sound process. (A so-called serial procedure can be applied to anything.) Then it becomes a sort of immobile , static world revolving around itself."[68]

A contrast between these two positions reveals that there is less contrast than one might expect from two composers whose music is so dissimilar. In describing the product of abstract serialist procedures as being "immobile" and "static," Berio echoes Ligeti's description of the "leveled-out" sound produced by automatic procedures. Both also proposed what is essentially the same solution: the involvement, or more accurately the re-involvement, of the composer in the compositional process on the formal level. Serialism meant nothing without thoughtful considerations, orderings, and choices on the part of the composer; it was not enough to employ serial techniques as ends in themselves. Just like chance procedures, unguided, integral serialism was not a way of making determinations, but a way for the composer to avoid determining anything. In the

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[67]Luciano Berio, "Poetry and music - an experiment" (1958/79): 18-19.

[68]David Roth, "Luciano Berio on New Music," *Musical Opinion* 99 (Sept. 1976): 548.

strictest sense, to compose means to make conscious decisions aimed towards an ordered result; the serialist system arbitrarily decided these results itself, ensuring that no decisions were made at all.

Criticisms such as these were at first annoyances, and later came to present serious difficulties to serialist ideology of the 1950's. In the end they proved to be insurmountable; integral serialism, as initially proclaimed, would prove to be not just flawed, but utterly beyond repair. "[A]t birth it already harbored the seeds of its own dissolution,"[69] a conclusion proven through rigorous compositional testing. It is not an exaggeration to suggest that these inherent difficulties were largely responsible for the end of the serialist movement of the 1950's. Composers continued to develop new ideologies and theories, but on an individual basis; unable to rely on a ready-made compositional methodology, each would be forced to make his/her own decisions, in their own way.

In composing *Sequenza I*, Berio made a number of choices. First, he chose to explore a single topic, the tension produced between musical ideas on the one hand, and the performer and his/her instrument on the other. He also chose to conduct his research through the use of an adapted serialist technique. He also reduced the number of categories employed in composition from the usual twelve,

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[69]Ligeti, "Metamorphosis on Musical Form," 14.

derived from the number of enhamonic pitches, to three, the minimum, medium and maximum. With this reduction he was consciously acting against the equalizing tendencies that had resulted in what Ligeti had referred to as "entropy". More important was what he chose to place in these categories. His categorizations were made not on the basis of abstract patterns, but by grouping actions based on their difficulty to a performer. This was accomplished through a careful evaluation of the physical and mental actions required by a human being in the production of a piece of music, what we commonly refer to as a performance.

In this light we can see *Sequenza I* for what it is: a first step in a new direction, a reaction against the status quo of the "avant-garde" of the time. It owes a great debt to serialism, but is more remarkable for its differences from serialism than its similarities.

Paul Griffiths has referred to Berio's *Sequenze* as a series of "composed performances."[70] At first this would not seem to be an especially interesting observation; in a sense every musical score is a composed performance. In a very special sense, however, *Sequenza I* is just that: a performance. Composed not just using sound, *Sequenza I* is, then, a complex exploration of a specific subject that is grounded not just in sound, but also in realms of psychology and cultural issues - all from the deliberately skewed

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[70]Griffiths, *Modern Music and Beyond*, 192.

perspective of a musician operating at the highest level of his ability - a *virtuoso*!

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Appendix A

Table of Properties

Measure					Measure					Measure				
1	D		P		31			P		63		T	P	
2	D		P		32			P		64		T	P	
3	D		P		33			P		65		T	P	
4	D		P		34			P		66	D	T		
5A	D		P		35			P		67	D	T		
5B		T	P		36	D	T			68	D	T		
6		T	P		37	D	T			69	D	T		
7		T	P		38	D	T			70	D	T		
8	D		P		39	D		P		71	D		P	
9	D		P		40	D		P		72		T	P	
10	D		P		41	D		P		73	D		P	
11	D		P		42	D		P		74	D		P	
12		T	P		43	D		P		75	D	T	P	
13A		T	P		44		T	P		76			P	
13B	D		P		45	D		P		77	D	T	P	
14	D		P		46-47A	D		P		78	D		P	
15	D	T			47B	D		P	M	79			P	
16	D	T			48	D	T			80	D		P	
17		T	P		49	D	T			81	D		P	
18	D		P		50	D		P		82		T	P	
19		T	P		51	D	T			83		T	P	
20	D		P		52	D	T			84		T	P	
21		T	P		53	D	T			85	D	T	P	
22A	D	T			54A	D		P		86	D	T	P	
22B	D	T		M	54B	D	T			87	D	T		
23		T	P		55			P		88		T	P	
24		T	P		56			P		89	D	T		
25		T	P		57	D	T			90	D	T		
26	D	T	P		58			P		91	D	T		
27	D		P		59			P		92	D	T		
28	D		P		60			P		93	D	T		
29	D		P	M	61	D	T			94		T	P	
30			P		62	D	T			95		T	P	

96		T	P	
97		T	P	
98	D		P	
99	D		P	
100	D		P	
101	D		P	
102	D		P	
103	D		P	
104	D		P	M
105	D		P	M
106	D		P	M
107	D		P	M
108	D		P	M
109	D		P	M
110	D		P	
111	D		P	
112	D		P	
113		T	P	
114		T	P	
115 A		T	P	
115B-116A	D	T	P	
116 B		T	P	
117		T	P	
118		T	P	
119A	D	T	P	
119B-120	D	T	P	
121		T	P	
122		T	P	
123	D	T	P	
124	D	T	P	
125		T	P	
126		T	P	
127	D	T	P	
128	D	T	P	
129-130A	D	T	P	
130 B	D	T	P	M
131	D	T	P	M
132		T	P	
133		T	P	
134	D	T	P	
135	D	T	P	
136		T	P	
137		T	P	
138	D	T	P	
139		T	P	
140	D		P	
141	D		P	
142	D		P	
143	D		P	
144		T	P	M
145	D	T	P	M
146	D	T	P	M
147A	D	T	P	M
148	D	T		
149	D	T		
150	D	T		
151		T	P	
152		T	P	
153		T	P	
154	D	T		
155	D		P	
156	D	T		
157		T	P	
158		T	P	
159	D	T		
160		T	P	
161A	D	T	P	
161B	D	T	P	M
162	D	T	P	M
163	D	T		
164	D		P	
165	D		P	
166	D		P	
167	D		P	
168	D	T	P	
169		T	P	
170		T	P	
171		T	P	
172	D		P	
173	D		P	
174	D		P	
175	D	T	P	M
176	D	T	P	M
177	D	T	P	M
178	D	T	P	M
179	D		P	
180	D	T		
181A	D	T	P	
181B-182	D	T	P	M
183	D	T	P	M
184	D	T	P	M
185	D	T	P	
186	D	T	P	
187A	D	T	P	
187B	D	T	P	M
188	D	T	P	M
189	D	T	P	M
190	D	T		
191	D		P	
192	D		P	
193	D		P	
194	D		P	
195		T	P	M
197B	D	T	P	M
198-199A	D		P	
199B-200			P	M
201	D			M
202			P	M
203	D			M
204			P	M
205	D		P	M
206	D			M
207	D			M
208	D		P	M
209	D		P	M
210	D		P	M
211A	D	T	P	M
211B	D	T	P	M
211C	D	T	P	
212		T	P	
213		T	P	
214	D	T	P	
215	D	T	P	
216	D	T	P	
217	D	T	P	M
218	D	T	P	M
219	D	T	P	M
220	D	T	P	M
221	D	T	P	M
222	D	T		
223	D	T		
224		T	P	

225	D	T		
226	D	T		
227	D		P	
228	D	T	P	
229	D	T	P	
230	D	T	P	M
231	D	T	P	M
232	D	T	P	M
233	D	T	P	M
234	D	T	P	M
235	D	T	P	M
236	D		P	
237	D		P	
238A	D		P	
238B-239	D	T	P	M
240	D	T	P	M
241	D	T	P	M
242	D	T		
243	D	T		
244	D	T		
245	D	T		
246	D	T	P	
247	D	T	P	
248	D	T	P	M
249	D		P	
250	D	T		
251		T	P	M
252A		T	P	M
252B-253A	D	T	P	
253B	D	T	P	M
254	D	T	P	M
255		T	P	M
256	D		P	M
257	D	T		M
258	D	T	P	
259	D	T	P	
260	D		P	M
261	D		P	M
262	D		P	
263	D		P	M
264	D		P	M
265	D		P	M
266	D		P	
267A	D		P	M
267B	D	T	P	
268	D	T	P	
269	D	T	P	M
270	D	T	P	M
271	D	T	P	
272	D	T	P	M